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**MORBIDITY AND MORTALITY WEEKLY REPORT**

*Epidemiologic Notes and Reports*

**Follow-up on Deaths Associated with Liquid Protein Diets**

The investigation by the Food and Drug Administration and CDC into the deaths associated with the liquid protein diets is continuing. A total of 58 such deaths have been reported; all occurred in the latter half of 1977 and early 1978.

Sixteen of these deaths, all in white women between the ages of 23 and 51, fit a distinctive clinical and pathologic pattern that has been previously described (1,2). This pattern is characterized by either sudden death or death due to intractable cardiac arrhythmias in individuals with no previous history of heart disease. Pathologically, the syndrome is associated with degenerative and inflammatory changes in the myocardium. All 16 women used liquid protein products as the primary source of calories for periods of greater than 2 months.

A nationwide telephone survey was performed during March and April of this year to determine how many women between the ages of 25 and 44 were on similar dietary regimens for 1 month or longer in 1977. The survey estimated that no more than 98,000 white women were on the liquid protein diet for a month or more and that no more than 37,000 were on it for 2 months or more in 1977. Usage of the diet did not differ significantly among the racial groups surveyed.

Of the 16 deaths fitting the distinctive pattern, 11 occurred in the United States from July through December of 1977 among women aged 25-44. Relating these 11 deaths to the estimated 37,000 users from the telephone survey gives an adjusted annual mortality rate of 59 deaths per 100,000 white women in this age group on the diet for periods of greater than 2 months in 1977. National mortality data indicate that the annual death rate due to etiologies consistent with the pattern of these deaths is less than 2 per 100,000 women aged 25-44 in the general population. Thus, it appears that in this age group prolonged use of the liquid protein diet accounts for a significant increase in mortality.

*Reported by Food and Drug Administration, Bur of Health Education, Bacterial Diseases Div, Bur of Epidemiology, CDC.*

**Editorial Note:** The FDA is developing regulations to require mandatory warning labels on protein products promoted for weight reduction. Additional studies are in progress to clarify further the magnitude of the risk involved for individuals on these diets and to determine the exact mechanism of the deaths that have occurred. There is little reason to doubt that the present data, which show an increased risk for white women aged 25-44 with prolonged use of the diet, would also apply to both sexes and all age and racial groups.

At the present time, insufficient information is available to insure the safety of persons on such regimens. A recent editorial suggested that "... the liquid protein regimens should be used with extreme caution and only under carefully controlled conditions.

### *Protein Diets — Continued*

conventional medical supervision is not an adequate safeguard"(3). Additionally, prolonged use should be limited to research settings controlled by protocols approved by committees on human experimentation and only with the informed consent of the participants.

#### *References*

1. MMWR 26:383, 1977
2. MMWR 26:443, 1977
3. Felig P: Four questions about protein diets. *N Engl J Med* 298: 1026, 1978

### International Notes

#### **Influenza — South America**

**Argentina:** Influenza A/USSR/77(H1N1)-like viruses were isolated in Córdoba during a sharp outbreak of influenza which started on April 7, 1978, at the Air Force Academy. Individuals from 15 to 21 years of age were affected, with an attack rate of 27%. This outbreak began in what is early autumn in Argentina and is the earliest recorded influenza epidemic there since 1965.

In Buenos Aires an outbreak of influenza occurred in a military barracks in mid-April; viruses resembling A/Texas/1/77 were isolated. In May, A/USSR/77(H1N1)-like viruses were isolated during an outbreak of influenza among Air Force recruits.

**Brazil:** In April and May, H3N2 strains which cross-reacted equally with A/Victoria/3/75 and A/Texas/1/77 were isolated in Rio de Janeiro. A/USSR/77(H1N1)-like viruses were isolated in Belem during May from patients whose ages ranged from 9 to 26 years. A/USSR/77-like viruses were also reported in June from São Paulo, where they were isolated only from children and young adults.

**Chile:** During May, A/USSR/77-like viruses were isolated in Valparaiso from Navy cadets and in Santiago from personnel at an Air Force school and from high school students.

**Ecuador:** Isolation of H3N2 viruses has been reported from residents of Guayaquil.

*Reported by the National Influenza Centres in Córdoba and Buenos Aires, Argentina; Belem and São Paulo, Brazil; Santiago, Chile; Guayaquil, Ecuador; and the WHO Collaborating Center for Influenza, CDC.*

### Current Trends

#### **Vaccine-Induced Canine Rabies — California**

On June 1, 1978, the California Department of Health (CDH) withdrew approval for the use in that state of low-egg-passage, chick-embryo-origin rabies vaccine (LEP-CEO), a modified live virus vaccine used only for immunization of dogs. The state withdrew the vaccine because a study completed recently by the CDH had shown that the vaccine can cause rabies in dogs at a rate of approximately 3 cases/million doses of vaccine administered; no other rabies vaccine was so incriminated.

Because no virus markers are known which positively differentiate vaccine virus from street virus, the CDH accepted for the study only those cases that adhered rigidly to a set of epidemiologic, laboratory, and clinical characteristics associated with vaccine-induced disease.

The study also found that, on the average, 1.9 persons were required to take anti-rabies treatment as a result of exposure to each case of presumed vaccine-induced disease. Although California will no longer allow the use of the LEP-CEO vaccine in that state,

*Canine Rabies - continued*

it will continue to recognize immunity conferred by that vaccine in dogs vaccinated in other states.

Reported by DG Constantine, EV Bayer, GL Humphrey, California Dept of Health; Respiratory and Special Pathogens Br, Viral Diseases Div, Bur of Epidemiology, CDC.

**Editorial Note:** A review of reported cases of vaccine-induced rabies in the rest of the United States for the period January 1976 through April 1978 yielded an attack rate of 0.4 cases/million vaccinates with the LEP-CEO vaccine and 0.01 cases/million with other modified live virus rabies vaccines. For the same time period California had reported 3 cases/million LEP-CEO vaccinates and 0 cases/million with other modified live virus vaccines. The much higher overall attack rate in California undoubtedly represents a more intensive surveillance for vaccine-associated disease. Particularly in vaccine-induced rabies, where non-fatal disease is common (5 of 12 cases in California), intensive surveillance is required to identify cases.

All states are now being asked to review retrospectively cases of rabies since 1976, with consideration to the possibility of vaccine-induced disease, and to be alert to this possibility in reviewing the epizootiology of future cases of dog rabies.

*Epidemiologic Notes and Reports***Follow-up on Outbreak of Dengue — Puerto Rico, 1978**

Reports of dengue-like illness continue to occur in Puerto Rico; for the week ending June 28, 1978, a total of 955 cases of suspected dengue were reported (Table 1). Of these, 175 were reported from the Bayamon area, 234 from the remainder of the San Juan metropolitan area, and 546 from the rest of the island. Cases were widespread: 69 of the 78 municipios of Puerto Rico reported dengue-like illness. The total number of reported cases since March 30, 1978, is 5,092.

**TABLE 1. Reports of dengue-like illness, Puerto Rico, June 1978**

Week ending	Bayamon	Rest of San Juan	Rest of island	Total
June 7	130	229	215	574
June 14	187	490	462	1,139
June 21	181	362	671	1,214
June 28	175	234	546	955

When 249 paired serum specimens from cases with onset since April 1 were tested, 82% were positive for recent dengue infection. Twenty-five of 26 isolates from cases with onset in May were type 1, and one was type 2.

Weekly average catches of adult *Aedes aegypti* mosquitoes increased during May and early June. In addition to extensive source reduction to control mosquito breeding throughout the island and ground-based insecticide spraying, 3 cycles of repeated ultra-low-volume applications of malathion over the metropolitan San Juan area were completed on June 16.

Reported by J Chiriboga, MD, Environmental Health, Puerto Rico Dept of Health; San Juan Laboratories, Bur of Laboratories, Vector Biology and Control Div, Bur of Tropical Diseases, and Viral Diseases Div, Bur of Epidemiology, CDC.

**Editorial Note:** Although the risk of dengue infection appears small and there have been no confirmed cases recently in travelers returning to the continental United States from Puerto Rico, CDC has alerted travel agencies, airlines, and shipping companies of the current situation. Travelers should take such precautions as applying insect repellent and wearing protective clothing to avoid mosquito bites.

## *Campylobacter* Enteritis — Colorado

On June 24, 1978, the first U.S. outbreak of waterborne *Campylobacter* gastroenteritis—involving an estimated 2,000 persons in Vermont—was reported (1). An additional small outbreak due to *Campylobacter* organisms has now been reported in Colorado.

On June 7, 1978, 3 of 5 family members in Colorado ranging in age from 20 to 60 became ill with malaise, myalgias, and nausea. Within the next 24 hours, the illness was marked by severe cramping, lower abdominal pain, and explosive diarrhea which in 1 case became bloody. All had fever (ranging up to 40 C [104 F]), which lasted for 2 days. In 2 of the patients all symptoms remitted within 4 days with symptomatic treatment that included oral and intravenous fluid therapy. The patient with bloody diarrhea continued to have diarrhea and abdominal pain for 6 days. Erythromycin was started, and the patient subsequently improved.

Stool cultures from all 3 patients yielded *C. fetus* sub. *jejuni*. No salmonellae, shigellae, or protozoans were found. Stool cultures from the 2 asymptomatic family members were negative.

The family operates a small farm with chickens, swine, sheep, calves, and a cow. Raw milk from the cow was consumed by all 3 patients and one of the other family members. On June 13, raw milk, eggs, and all animals from the farm were cultured for *Campylobacter* organisms. All were negative with the exception of the stool culture of the cow, which yielded *C. fetus* sub. *jejuni*.

(Continued on page 231)

**TABLE I. Summary — cases of specified notifiable diseases, United States**

[Cumulative totals include revised and delayed reports through previous weeks.]

DISEASE	26th WEEK ENDING		MEDIAN 1973-1977**	CUMULATIVE, FIRST 26 WEEKS		
	July 1, 1978	July 2, 1977*		July 1, 1978	July 2, 1977*	MEDIAN 1973-1977**
Aseptic meningitis	99	90	69	1,184	1,150	1,042
Brucellosis	4	3	5	71	98	98
Chickenpox	2,536	2,593	2,185	115,323	153,539	139,214
Diphtheria	15	2	2	51	53	116
Encephalitis: Primary (arthropod-borne & unsp.)	14	18	19	295	326	402
Post-infectious	3	4	4	96	106	150
Hepatitis, Viral: Type B	280	290	221	7,312	8,178	5,548
Type A	589	529	752	14,243	15,742	17,717
Type unspecified	169	174	—	4,402	4,427	—
Malaria	13	18	14	279	228	156
Measles (rubella)	492	1,051	696	20,160	49,059	22,434
Meningococcal infections: Total	37	31	27	1,388	1,048	864
Civilian	36	31	27	1,372	1,042	843
Military	1	—	—	16	6	17
Mumps	314	319	963	11,816	14,576	40,582
Pertussis	27	22	—	865	441	—
Rubella (German measles)	388	413	312	13,589	17,162	13,683
Tetanus	2	2	2	34	31	31
Tuberculosis	535	633	669	14,735	15,133	15,963
Tularemia	4	6	6	39	63	63
Typhoid fever	5	6	14	206	170	170
Typhus fever, tick-borne (Rky. Mt. spotted)	49	44	37	336	431	292
Veneral diseases:						
Gonorrhea: Civilian	19,172	18,518	19,141	462,587	469,698	469,818
Military	393	735	610	11,947	13,579	14,149
Syphilis, primary & secondary: Civilian	421	370	390	10,356	10,245	12,254
Military	4	8	4	149	153	169
Rabies in animals	55	63	63	1,526	1,474	1,474

**TABLE II. Notifiable diseases of low frequency, United States**

	CUM. 1978		CUM. 1978
Anthrax	4	Poliomyelitis: Total	—
Botulism	50	Paralytic	—
Congenital rubella syndrome (Mich 1)	16	Psittacosis (Ark. 1, Utah 2)	55
Leprosy (Upst. NY 1, Va. 1, Tex. 1, Calif. 3)	68	Rabies in man	—
Lptospirosis	22	Trichinosis † (NYC 1, Ohio 1)	27
Plague	2	Typhus fever, flea-borne (endemic, murine) (N.C. 1, Tex. 2)	18

\* Delayed reports received for calendar year 1977 are used to update last year's weekly and cumulative totals.

\*\* Medians for gonorrhea and syphilis are based on data for 1975-1977.

† The following delayed report will be reflected in next week's cumulative total: Trichinosis: Pa. 8

TABLE III. Cases of specified notifiable diseases, United States,  
weeks ending July 1, 1978 and July 2, 1977 - 26th week

REPORTING AREA	ASEPTIC MENIN- GITIS	BRU- CEL- LOSIS	CHICKEN- POX	DIPHTHERIA		ENCEPHALITIS			HEPATITIS (VIRAL), BY TYPE			MALARIA	
						Primary		Post-in- fectious	B	A	Unspecified		
	1978	1978	1978	1978	CUM. 1978	1978	1977*	1978	1978	1978	1978	1978	CUM. 1978
UNITED STATES	99	4	2,536	15	51	14	18	3	280	589	169	13	279
NEW ENGLAND	4	2	303	-	-	-	-	-	7	6	10	1	11
Maine	-	-	22	-	-	-	-	-	1	2	-	-	1
N.H.†	-	-	-	-	-	-	-	-	-	-	1	-	1
Vt.	-	-	-	-	-	-	-	-	-	-	-	-	-
Mass.	1	1	121	-	-	-	-	-	5	2	8	1	3
R.I.	-	1	46	-	-	-	-	-	-	2	-	-	-
Conn.	3	-	114	-	-	-	-	-	1	-	1	-	6
MID. ATLANTIC	10	-	395	-	1	-	4	-	61	61	30	1	57
Upstate N.Y.	3	-	285	-	-	-	-	-	14	18	6	-	9
N.Y. City	4	-	56	-	1	-	1	-	5	11	7	1	24
N.J.	-	-	NN	-	-	-	3	-	14	12	9	-	12
Pa.†	3	-	14	-	-	-	-	-	28	20	9	-	12
E.N. CENTRAL	7	-	1,106	-	-	4	3	-	48	96	11	-	13
Ohio†	2	-	427	-	-	3	-	-	17	43	-	-	-
Ind.†	-	-	8C	-	-	-	3	-	6	5	4	-	3
Ill.	-	-	76	-	-	-	-	-	5	21	1	-	3
Mich.	5	-	272	-	-	1	-	-	17	23	6	-	6
Wis.†	-	-	251	-	-	-	-	-	3	4	-	-	1
W.N. CENTRAL	5	-	28	-	1	-	-	-	7	46	-	-	13
Minn.	-	-	2	-	-	-	-	-	2	30	-	-	3
Iowa	-	-	22	-	-	-	-	-	1	7	-	-	-
Mo.†	2	-	1	-	1	-	-	-	2	1	-	-	5
N. Dak.†	-	-	3	-	-	-	-	-	2	-	-	-	-
S. Dak.†	-	-	-	-	-	-	-	-	-	-	-	-	-
Nebr.	-	-	-	-	-	-	-	-	-	-	-	-	3
Kans.†	3	-	-	-	-	-	-	-	-	8	-	-	2
S. ATLANTIC	19	-	168	-	-	3	2	2	44	78	21	4	53
Del.	-	-	8	-	-	-	-	-	-	1	-	-	1
Md.	-	-	65	-	-	-	-	-	9	7	1	-	9
D.C.	-	-	-	-	-	-	-	-	-	1	-	-	-
Va.	3	-	8	-	-	-	-	-	1	5	4	1	15
W. Va.	-	-	43	-	-	-	2	-	1	3	-	-	1
N.C.†	6	-	NN	-	-	1	-	-	14	14	8	-	1
S.C.	6	-	1	-	-	2	-	-	1	-	-	1	4
Ga.	-	-	-	-	-	-	-	-	5	15	-	-	6
Fla.	4	-	39	-	-	-	-	2	13	32	8	2	16
E.S. CENTRAL	13	-	111	-	-	-	-	-	7	20	2	-	3
Ky.	2	-	104	-	-	-	-	-	-	-	-	-	1
Tenn.	5	-	NN	-	-	-	-	-	4	8	-	-	1
Ala.	2	-	5	-	-	-	-	-	-	-	2	-	1
Miss.	4	-	2	-	-	-	-	-	3	12	-	-	-
W.S. CENTRAL	17	1	37	-	1	2	5	-	18	61	31	1	16
Ark.	2	-	2	-	1	1	-	-	3	12	2	-	-
La.	-	-	NN	-	-	-	-	-	-	-	-	-	3
Okla.	2	1	-	-	-	-	1	-	1	1	7	-	-
Tex.	13	-	35	-	-	1	4	-	14	48	22	1	13
MOUNTAIN	-	1	157	-	3	-	-	-	20	51	15	-	4
Mont.	-	-	16	-	-	-	-	-	-	2	2	-	-
Idaho	-	1	25	-	-	-	-	-	1	16	-	-	-
Wyo.	-	-	-	-	-	-	-	-	-	-	-	-	-
Colo.	-	-	-	-	-	-	-	-	-	-	-	-	-
N. Mex.	-	-	87	-	2	-	-	-	3	5	2	-	1
Ariz.	-	-	-	-	-	-	-	-	10	4	7	-	1
Utah	-	-	NN	-	-	-	-	-	-	12	1	-	1
Nev.	-	-	29	-	-	-	-	-	1	3	1	-	-
PACIFIC	24	-	231	15	45	5	4	1	68	170	49	6	109
Wash.	-	-	202	15	42	1	-	-	8	35	9	-	3
Oreg.	-	-	-	-	-	1	-	-	6	26	5	-	3
Calif.†	20	-	-	-	-	3	4	1	53	96	35	6	86
Alaska	1	-	24	-	3	-	-	-	-	11	-	-	2
Hawaii	3	-	5	-	-	-	-	-	1	2	-	-	15
Guam	NA	NA	NA	NA	-	NA	-	-	NA	NA	NA	NA	-
P.R.	-	-	15	-	-	-	1	-	-	2	5	-	4
V.I.	NA	NA	NA	NA	-	NA	-	-	NA	NA	NA	NA	1

NN: Not notifiable.

NA: Not available.

\*Delayed reports received for 1977 are not shown below but are used to update last year's weekly and cumulative totals.

†The following delayed reports will be reflected in next week's cumulative totals: Aseptic meningitis: Pa. +5, Ind. +2; Chickenpox: Pa. +65, Ind. +114, Calif. +2; Encephalitis: Ind. +1; Hepatitis B: N.H. +2, Pa. +12, Ohio +1, Kans. -1; Hepatitis A: Pa. +11, Ohio -2, Ind. +3, Wis. -1, Mo. +1, N. Dak. +1; Hepatitis unsp.: Pa. +3, Ind. +4, Mo. -2, N.C. -1; Malaria: Pa. +2, S. Dak. +1.

TABLE III (Continued). Cases of specified notifiable diseases, United States, weeks ending July 1, 1978 and July 2, 1977 — 26th week

REPORTING AREA	MEASLES (RUBEOLA)			MENINGOCOCCAL INFECTIONS TOTAL			MUMPS		PERTUSSIS	RUBELLA		TETANUS
	1978	CUM. 1978	CUM. 1977*	1978	CUM. 1978	CUM. 1977*	1978	CUM. 1978	1978	1978	CUM. 1978	CUM. 1978
UNITED STATES	492	20,160	49,059	37	1,388	1,048	314	11,816	27	388	13,589	34
NEW ENGLAND	20	1,909	2,396	2	65	44	15	692	1	9	667	-
Maine	7	1,298	163	-	6	3	4	479	-	1	144	-
N.H.	-	44	509	-	6	3	-	11	-	-	97	-
Vt.	-	24	250	-	2	4	-	5	-	-	27	-
Mass.†	13	219	605	-	15	14	4	81	-	3	179	-
R.I.†	-	7	58	1	15	-	1	24	-	-	40	-
Conn.	-	317	771	1	21	20	6	92	1	5	180	-
MID. ATLANTIC	63	1,794	7,497	6	228	137	17	497	3	92	2,650	1
Upstate N.Y.	36	1,210	3,210	-	75	31	2	175	3	5	466	-
N.Y. City	4	200	544	2	57	35	3	118	-	6	73	-
N.J.	-	63	190	-	39	29	12	114	-	48	1,548	-
Pa.†	23	321	3,553	4	57	42	-	90	-	33	563	1
E.N. CENTRAL	294	8,902	9,735	7	116	112	181	4,619	5	166	6,314	1
Ohio	14	450	978	6	32	36	96	699	-	24	1,226	-
Ind.†	2	151	4,223	1	23	7	11	248	1	5	502	1
Ill.	-	514	1,373	-	6	29	10	1,587	3	35	376	-
Mich.	244	6,414	858	-	44	28	32	1,238	1	83	2,782	-
Wis.†	34	1,373	2,303	-	11	12	32	847	-	19	1,428	-
W.N. CENTRAL	6	349	9,329	1	51	51	4	1,860	-	44	597	4
Minn.†	2	36	2,591	-	10	19	-	15	-	40	124	-
Iowa	-	49	4,236	-	5	7	2	119	-	2	45	-
Mo.	-	7	1,015	-	23	14	2	1,131	-	-	88	-
N. Dak.	4	184	22	-	3	1	-	11	-	-	73	-
S. Dak.	-	-	66	-	2	4	-	6	-	2	107	-
Nebr.	-	5	192	-	-	1	-	18	-	-	34	-
Kans.	-	68	1,207	1	8	5	-	560	-	-	126	4
S. ATLANTIC	38	4,149	4,175	6	356	246	15	622	4	19	928	4
Del.	-	5	22	-	12	17	1	43	-	-	34	-
Md.	4	33	366	-	15	15	-	55	-	1	5	1
D.C.	-	-	14	-	1	-	-	1	-	-	1	-
Va.†	8	2,386	2,459	-	42	19	-	110	-	1	221	-
W. Va.	19	980	202	-	7	8	2	150	-	1	312	-
N.C.	-	92	59	1	70	57	3	53	1	-	167	-
S.C.	-	188	144	2	24	24	-	15	-	-	24	-
Ga.	1	15	720	-	42	36	2	61	2	-	1	-
Fla.	6	450	189	3	143	70	7	134	1	16	163	3
E.S. CENTRAL	22	1,301	1,856	1	112	115	24	991	1	29	442	1
Ky.	1	104	1,106	-	20	19	3	178	1	10	117	1
Tenn.	16	903	647	1	29	29	2	425	-	10	160	-
Ala.	-	89	76	-	34	46	19	334	-	2	18	-
Miss.	5	205	27	-	29	21	-	54	-	7	147	-
W.S. CENTRAL	11	894	1,985	5	218	183	20	1,545	5	9	832	13
Ark.	1	16	29	2	18	9	3	575	2	-	57	1
La.†	4	315	74	-	87	65	-	54	-	8	469	1
Okla.	1	13	52	-	16	10	-	4	-	-	11	2
Tex.	5	550	1,830	3	97	99	17	912	3	1	295	9
MOUNTAIN	2	206	2,422	-	30	28	22	344	1	3	170	1
Mont.	-	102	1,133	-	1	2	1	156	-	2	15	-
Idaho	-	1	160	-	2	4	-	20	-	-	2	-
Wyo.	-	-	13	-	-	1	-	-	-	-	-	-
Colo.	2	28	480	-	2	1	8	73	1	1	42	-
N. Mex.	-	-	253	-	7	7	-	15	-	-	3	-
Ariz.	-	17	286	-	11	10	2	10	-	-	76	-
Utah	-	44	6	-	4	2	11	80	-	-	23	1
Nev.	-	14	91	-	3	1	-	4	-	-	9	-
PACIFIC	36	656	9,664	9	212	132	16	645	7	17	989	9
Wash.	25	86	509	1	35	15	-	163	1	-	90	-
Oreg.	-	138	316	7	19	17	5	73	1	5	83	-
Calif.	10	428	8,745	1	149	75	11	380	5	11	812	9
Alaska	-	-	60	-	5	22	-	6	-	-	2	-
Hawaii	1	4	34	-	4	2	-	24	-	1	2	-
Guam	NA	24	4	-	-	-	NA	19	NA	NA	1	-
P.R.	30	187	802	-	2	1	52	457	-	3	15	4
V.I.	NA	6	12	-	1	-	NA	1	NA	NA	1	-

NA: Not available.

\*Delayed reports received for 1977 are not shown below but are used to update last year's weekly and cumulative totals.

†The following delayed reports will be reflected in next week's cumulative totals: Measles: Pa. +11, Ind. +10, Wis. -1, Minn. -2, Va. +200, La. -4; Men. inf.: R.I. +1, Pa. +4, Ind. +1; Mumps: Mass. -2, Pa. +2, Ind. +16; Pertussis: Pa. +1, Ind. +2; Rubella: Mass. -1, Pa. +69, Ind. +9, Wis. +2, La. +2

TABLE III (Continued). Cases of specified notifiable diseases, United States,  
weeks ending July 1, 1978 and July 2, 1977 — 26th week

REPORTING AREA	TUBERCULOSIS		TULA- REMIA	TYPHOID FEVER		TYPHUS FEVER (Tick-borne) (RMSF)		VENEREAL DISEASES (Civilian)							RABIES (in Animals)
								GONORRHEA			SYPHILIS (Pri. & Sec.)				
	1978	CUM. 1978		CUM. 1978	1978	CUM. 1978	1978	CUM. 1978	CUM. 1977*	1978	CUM. 1978	CUM. 1977*	CUM. 1978		
UNITED STATES	535	14,735	39	5	206	49	336	19,172	462,587	469,698	421	10,356	10,245	1,526	
NEW ENGLAND	17	484	-	-	36	1	8	459	12,131	12,198	13	309	427	59	
Maine	2	34	-	-	-	-	-	34	906	886	-	8	12	54	
N.H.	-	8	-	-	5	-	-	22	553	486	-	4	3	-	
Vt.	1	21	-	-	1	-	-	7	294	308	-	3	6	-	
Mass.	12	281	-	-	21	1	3	212	5,354	5,272	7	193	309	3	
R.I.	1	32	-	-	4	-	1	25	862	988	2	13	6	-	
Conn.	1	108	-	-	5	-	4	159	4,162	4,258	4	88	91	2	
MID. ATLANTIC	51	2,501	2	1	21	2	13	2,147	50,273	48,142	59	1,411	1,456	36	
Upstate N.Y.	14	377	1	-	7	1	9	531	8,492	7,952	-	102	136	30	
N.Y. City	14	918	1	1	10	1	1	865	20,025	19,640	39	1,003	916	-	
N.J.	23	652	-	-	2	-	1	296	9,075	7,851	9	156	187	4	
Pa.	-	554	-	-	2	-	2	455	12,681	12,699	11	150	217	2	
E.N. CENTRAL	64	2,210	-	-	9	1	3	3,338	68,103	72,716	27	1,076	1,076	67	
Ohio	10	421	-	-	3	1	1	894	17,666	18,975	4	211	263	6	
Ind.	-	248	-	-	-	-	-	89	6,553	6,279	-	55	85	5	
Ill.	37	852	-	-	1	-	2	1,249	21,320	24,113	16	665	555	16	
Mich.	12	586	-	-	5	-	-	706	16,139	16,579	6	111	123	3	
Wis.	5	103	-	-	-	-	-	400	6,425	6,770	1	34	50	37	
W.N. CENTRAL	16	504	9	-	10	-	11	1,024	23,510	24,637	16	253	234	339	
Minn.	-	97	-	-	4	-	-	197	4,156	4,428	5	105	74	116	
Iowa	-	54	-	-	2	-	-	74	2,583	2,907	5	35	19	68	
Mo.	7	217	8	-	2	-	6	431	9,918	10,371	6	68	79	42	
N. Dak.	2	22	-	-	-	-	1	18	436	448	-	2	2	54	
S. Dak.	2	43	-	-	-	-	-	21	844	644	-	1	2	40	
Neb.	1	10	-	-	-	-	-	165	1,787	2,168	-	7	24	2	
Kans.	4	61	1	-	2	-	4	118	3,786	3,671	-	35	34	17	
S. ATLANTIC	165	3,210	3	-	26	32	198	4,363	109,228	115,113	113	2,773	2,952	198	
Del.	-	24	-	-	1	-	4	23	1,550	1,541	-	5	16	1	
Md.	21	500	3	-	1	3	44	392	14,289	14,640	10	218	201	-	
D.C.	16	181	-	-	1	-	-	338	7,573	7,582	7	222	310	-	
Va.	15	345	-	-	6	3	42	539	10,609	11,981	7	241	297	4	
W. Va.	6	108	-	-	1	-	0	50	1,644	1,668	-	8	1	2	
N.C.	28	477	-	-	2	15	59	600	15,692	16,935	15	257	420	4	
S.C.	11	285	-	-	2	9	25	535	11,178	10,641	3	132	129	42	
Ga.	26	446	-	-	2	2	10	1,333	18,146	22,497	17	666	567	134	
Fla.	42	844	-	-	10	-	-	853	28,547	27,628	54	1,024	1,011	11	
E.S. CENTRAL	25	1,392	4	-	2	8	58	1,884	40,513	41,936	17	516	357	77	
Ky.	17	316	1	-	1	-	9	280	4,962	5,665	4	67	42	44	
Tenn.	4	432	3	-	1	6	42	871	14,824	17,124	3	132	116	16	
Ala.	4	335	-	-	1	4	621	11,959	11,959	11,959	-	76	60	17	
Miss.	-	309	-	-	-	1	3	112	8,763	7,594	10	191	139	-	
W.S. CENTRAL	85	1,708	17	-	22	5	41	2,393	65,246	59,904	86	1,619	1,357	514	
Ark.	5	189	13	-	1	-	8	28	4,690	4,624	-	41	30	75	
La.	1	282	1	-	1	-	-	336	10,779	8,489	31	343	316	11	
Okl.	10	183	3	-	2	4	24	300	6,119	5,610	4	47	39	117	
Tex.	69	1,054	-	-	18	1	9	1,729	43,658	41,181	51	1,188	972	311	
MOUNTAIN	18	434	2	-	12	-	3	775	17,261	18,993	15	204	212	26	
Mont.	1	31	-	-	1	-	2	28	1,026	909	-	7	3	3	
Idaho	1	15	2	-	5	-	-	32	646	880	-	5	4	-	
Wyo.	1	11	-	-	-	-	-	21	387	462	-	4	2	-	
Colo.	5	37	-	-	2	-	-	187	4,835	4,960	1	56	64	-	
N. Mex.	3	72	-	-	1	-	-	82	2,454	2,795	1	54	40	9	
Ariz.	7	207	-	-	2	-	-	314	4,442	5,536	11	48	88	12	
Utah	-	22	-	-	1	-	-	48	976	1,052	2	11	4	2	
Nev.	-	35	-	-	1	-	1	63	2,491	2,349	-	19	7	-	
PACIFIC	94	2,292	2	4	68	-	1	2,789	76,322	76,059	75	2,195	2,174	210	
Wash.	NA	82	-	1	6	-	-	230	5,803	5,729	NA	40	106	-	
Oreg.	7	53	-	-	1	-	-	170	5,322	5,261	-	72	65	3	
Calif.	61	1,765	2	1	54	-	1	2,243	61,294	63,944	73	2,013	1,966	201	
Alaska	11	46	-	-	-	-	-	99	2,444	2,448	-	7	16	6	
Hawaii	15	306	-	2	7	-	-	47	1,455	1,637	2	23	21	-	
Guam	NA	33	-	NA	-	NA	-	NA	97	116	NA	-	1	-	
P.R.	-	212	-	-	1	-	-	40	1,196	1,629	6	225	284	13	
V.I.	NA	3	-	NA	2	NA	-	NA	104	98	NA	8	3	-	

NA: Not available.

\* Delayed reports received for 1977 are not shown below but are used to update last year's weekly and cumulative totals.

† The following delayed reports will be reflected in next week's cumulative totals: TB: Pa. +51, Ohio -6, Ind. +11, Mich. -4, Md. -5, N.C. -2; RMSF: Ind. +1; GC: Pa. +686, Ind. +118, Neb. -1, Ga. +3728 civ. +175 mil; Syphilis: Pa. +3.

TABLE IV. Deaths in 121 U.S. cities,\* week ending July 1, 1978 — 26th week

REPORTING AREA	ALL CAUSES, BY AGE (YEARS)					P & I** TOTAL	REPORTING AREA	ALL CAUSES, BY AGE (YEARS)					P & I** TOTAL
	ALL AGES	>65	45-64	25-44	<1			ALL AGES	>65	45-64	25-44	<1	
<b>NEW ENGLAND</b>	583	375	139	32	15	30	<b>S. ATLANTIC</b>	1,081	616	292	72	63	48
Boston, Mass.	165	101	30	17	7	5	Atlanta, Ga.	139	86	24	9	17	8
Bridgport, Conn.	31	24	4	2	1	2	Baltimore, Md.	161	102	44	6	5	2
Cambridge, Mass.	17	13	4	—	—	3	Charlotte, N.C.	37	15	12	4	5	1
Fall River, Mass.	34	28	5	1	—	1	Jacksonville, Fla.	78	46	20	7	4	6
Hartford, Conn.	46	28	15	1	—	—	Miami, Fla.	101	50	32	3	6	3
Lowell, Mass.	24	14	10	—	—	2	Norfolk, Va.	46	21	14	4	2	4
Lynn, Mass.	20	14	5	—	—	—	Richmond, Va.	71	41	16	8	2	5
New Bedford, Mass.	29	15	5	2	—	2	Savannah, Ga.	35	20	12	3	—	2
New Haven, Conn.	38	24	7	5	1	1	St. Petersburg, Fla.	80	63	14	—	3	5
Providence, R.I.	53	27	21	2	3	5	Tampa, Fla.	67	44	17	3	—	7
Somerville, Mass.	8	8	—	—	—	1	Washington, D.C.	213	104	64	18	18	2
Springfield, Mass.	54	30	17	1	2	1	Wilmington, Del.	53	24	23	2	1	3
Waterbury, Conn.	27	20	7	—	—	2							
Worcester, Mass.	41	29	9	1	1	5							
<b>MID. ATLANTIC</b>	2,688	1,714	654	168	79	126	<b>E.S. CENTRAL</b>	730	424	194	47	25	25
Albany, N.Y.	45	31	10	1	1	1	Birmingham, Ala.	155	96	40	11	3	2
Allentown, Pa.	25	18	5	2	—	—	Chattanooga, Tenn.	61	30	17	7	3	3
Buffalo, N.Y.	104	60	32	5	4	8	Knoxville, Tenn.	40	29	8	—	1	1
Camden, N.J.	33	17	9	3	3	—	Louisville, Ky.	100	60	30	4	3	8
Elizabeth, N.J.	31	20	10	—	—	1	Memphis, Tenn.	173	99	45	16	3	2
Erie, Pa.	38	27	9	2	—	5	Mobile, Ala.	80	44	19	5	3	3
Jersey City, N.J.	26	16	7	2	1	1	Montgomery, Ala.	43	24	15	2	1	2
Newark, N.J.	55	32	11	6	4	4	Nashville, Tenn.	78	42	20	2	8	4
N.Y. City, N.Y.	1,378	896	306	98	42	54	<b>W.S. CENTRAL</b>	1,274	688	345	102	67	32
Puterson, N.J.	41	29	7	1	—	5	Austin, Tex.	62	35	15	7	2	7
Philadelphia, Pa.	480	297	143	24	12	22	Baton Rouge, La.	30	23	4	2	—	2
Pittsburgh, Pa.	78	46	22	6	1	9	Corpus Christi, Tex.	43	21	13	4	2	1
Reading, Pa.	34	24	8	1	—	—	Dallas, Tex.	201	100	73	16	6	2
Rochester, N.Y.	111	74	23	3	6	6	El Paso, Tex.	56	35	15	1	3	—
Schenectady, N.Y.	29	19	9	—	—	2	Fort Worth, Tex.	79	46	18	7	3	1
Scranton, Pa.	19	12	6	—	—	1	Houston, Tex.	311	159	86	32	15	4
Syracuse, N.Y.	71	40	19	5	4	2	Little Rock, Ark.	41	21	6	3	5	1
Trenton, N.J.	26	16	8	2	1	4	New Orleans, La.	132	75	31	5	15	—
Utica, N.Y.	19	14	2	2	—	1	San Antonio, Tex.	152	82	36	15	4	2
Yonkers, N.Y.	35	26	8	—	—	—	Shreveport, La.	105	48	35	6	11	4
							Thule, Okla.	62	43	13	4	1	8
<b>E.N. CENTRAL</b>	2,153	1,212	501	140	109	57	<b>MOUNTAIN</b>	557	328	134	36	33	12
Akron, Ohio	49	30	13	3	2	—	Albuquerque, N. Mex.	59	28	16	9	1	4
Canton, Ohio	28	14	13	—	1	1	Colorado Springs, Colo.	32	17	9	2	3	2
Chicago, Ill.	532	295	136	49	32	10	Denver, Colo.	114	73	29	2	6	3
Cincinnati, Ohio	133	81	35	3	9	3	Las Vegas, Nev.	50	19	22	5	2	1
Cleveland, Ohio	170	82	54	12	12	5	Ogden, Utah	21	12	3	1	2	1
Columbus, Ohio	130	70	37	4	5	5	Phoenix, Ariz.	121	76	23	11	7	—
Dayton, Ohio	105	60	31	4	3	3	Pueblo, Colo.	18	13	5	—	—	1
Detroit, Mich.	273	148	82	19	7	10	Salt Lake City, Utah	57	36	11	2	6	—
Evansville, Ind.	39	24	11	1	3	1	Tucson, Ariz.	85	54	16	4	6	—
Fort Wayne, Ind.	70	37	15	10	6	4							
Gary, Ind.	12	9	2	1	—	—	<b>PACIFIC</b>	1,492	849	363	108	55	32
Grand Rapids, Mich.	65	34	22	2	5	5	Berkeley, Calif.	19	10	4	4	1	—
Indianapolis, Ind.	131	76	37	6	7	—	Fresno, Calif.	68	34	19	4	6	1
Madison, Wis.	26	18	4	2	—	3	Glendale, Calif.	10	9	1	—	—	1
Milwaukee, Wis.	125	74	35	3	5	3	Honolulu, Hawaii	47	23	13	3	4	—
Peoria, Ill.	31	17	10	—	3	1	Long Beach, Calif.	113	81	27	3	1	1
Rockford, Ill.	40	23	8	5	3	1	Los Angeles, Calif.	345	212	77	33	7	9
South Bend, Ind.	48	32	12	1	—	2	Oakland, Calif.	57	30	17	7	2	1
Toledo, Ohio	84	55	23	1	3	—	Pasadena, Calif.	33	24	4	—	—	1
Youngstown, Ohio	62	33	21	4	3	—	Portland, Oreg.	120	72	30	8	8	1
							Sacramento, Calif.	77	43	22	1	6	1
<b>W.N. CENTRAL</b>	677	429	154	41	30	17	San Diego, Calif.	134	88	26	6	2	—
Des Moines, Iowa	39	26	9	2	1	—	San Francisco, Calif.	161	93	39	15	8	3
Duluth, Minn.	30	24	5	1	—	—	San Jose, Calif.	59	30	17	6	1	2
Kansas City, Kans.	30	9	8	4	5	1	Seattle, Wash.	159	95	37	15	7	6
Kansas City, Mo.	114	77	27	5	7	5	Spokane, Wash.	42	18	19	—	2	4
Lincoln, Nebr.	25	17	2	3	1	1	Tacoma, Wash.	48	32	11	3	—	1
Minneapolis, Minn.	89	60	14	11	2	1							
Omaha, Nebr.	57	34	15	2	4	2							
St. Louis, Mo.	167	104	47	8	1	5	<b>TOTAL</b>	11,235	6,685	2,876	746	476	379
St. Paul, Minn.	72	46	13	2	5	1	Expected Number	10,484	6,495	2,814	705	420	346
Wichita, Kans.	54	32	14	3	4	1							

\*Mortality data in this table are voluntarily reported from 121 cities in the United States, most of which have populations of 100,000 or more. A death is reported by the place of its occurrence and by the week that the death certificate was filed. Fetal deaths are not included.

\*\*Pneumonia and influenza



### *Campylobacter Enteritis – Continued*

Reported by MJ Blazer, MD, J Cravens, P Riepe, B Powers, WL Wang, PhD, VA Hospital, Denver; TA Edell, MD, Acting State Epidemiologist, Colorado State Dept of Health; Enteric Diseases Br, Bacterial Disease Div, Bur of Epidemiology, CDC.

**Editorial Note:** *Campylobacter* is the generic name proposed in 1963 (2) for a group of microaerophilic organisms that clearly differed from *Vibrio* organisms. The type species is *C. fetus* (*Vibrio fetus*), which had been known as a cause of abortion in cattle and sheep; other members of the new genus have been associated with diseases of domestic animals, including enteritis of calves and pigs.

Although evidence from the outbreak reported here is incomplete, it is compatible with the transmission of *Campylobacter* organisms by unpasteurized milk. Unpasteurized milk has been previously suggested as a vehicle for such infections (3,4).

A recent review of the clinical and epidemiologic features of persons in England from whose feces *Campylobacter* organisms were isolated reveals that 94% had diarrhea (15% with blood, pus, or mucus), 8% had persisting or recurring diarrhea for 2 weeks or more, and 13% had severe abdominal pain. Sixty-six percent were individuals 15 years of age or older (5).

#### *References*

1. MMWR 77:207, 1978
2. Sebald M, Vernon M: Teneur en bases de l'ADN et classification de vibrions. Ann Institut Pasteur 105:897-910, 1963
3. Levy AJ: A gastroenteritis outbreak probably due to a bovine strain of *Vibrio*. Yale J of Biol and Med 18:243-258, 1946
4. Communicable Disease Surveillance Centre: Outbreaks of *Campylobacter* infection. Communicable Disease Report 78(20), May 19, 1978
5. Communicable Disease Surveillance Centre: Reports of *Campylobacter* isolates in 1977. Communicable Disease Report 78(13), March 31, 1978

### Recommendation of the Public Health Service

### Advisory Committee on Immunization Practices

## Typhoid Vaccine

### INTRODUCTION

The incidence of typhoid fever has declined steadily in the United States in the last half century, and in recent years fewer than 400 cases have been reported annually. The continuing downward trend is due largely to better sanitation and other control measures; vaccine is not deemed to have played a significant role. An increasing proportion of cases reported in the United States (about 50% in 1976) were acquired by travelers in other countries.

### TYPHOID AND PARATYPHOID A AND B VACCINES

Although typhoid vaccines\* have been used for many decades, only recently has definitive evidence of their effectiveness been observed in well-controlled field investigations. Several different preparations of typhoid vaccine have been shown to protect 70-90% of recipients, depending in part of the degree of their subsequent exposure.

\*Official name: Typhoid Vaccine

### *Typhoid Vaccine — Continued*

The effectiveness of paratyphoid A vaccine has never been established, and field trials have shown that usually small amounts of paratyphoid B antigens contained in "TAB" vaccines (vaccines combining typhoid and paratyphoid A and B antigens) are not effective. Knowing this and recognizing that combining paratyphoid A and B antigens with typhoid vaccine increases the risk of vaccine reaction, one should use typhoid vaccine alone.

## VACCINE USAGE

Routine typhoid vaccination is no longer recommended for persons in the United States. Selective immunization is, however, indicated for:

1. Persons with intimate exposure to a documented typhoid carrier, such as would occur with continued household contact.

2. Travelers to areas where there is a recognized risk of exposure to typhoid because of poor food and water sanitation. It should be emphasized, however, that even after typhoid vaccination there should be careful selection of foods and water in these areas.

There is no evidence that typhoid vaccine is of value in the United States in controlling common-source outbreaks. Furthermore, there is no reason to use typhoid vaccine for persons in areas of natural disaster such as floods or for persons attending rural summer camps.

### Primary Immunization

On the basis of the field trials referred to above, the following dosages of typhoid vaccine available in the United States are recommended:

**Adults and children 10 years and older:** 0.5 ml subcutaneously on 2 occasions, separated by 4 or more weeks.

**Children less than 10 years old\*:** 0.25 ml subcutaneously on 2 occasions, separated by 4 or more weeks.

In instances where there is not sufficient time for 2 doses at the interval specified, it has been common practice to give 3 doses of the same volumes listed above at weekly intervals, although it is recognized that this schedule may be less effective. When vaccine must be administered for travel overseas under constraint of time, a second dose may be administered en route at the more desirable interval.

### Booster Doses

Under conditions of continued or repeated exposure, a booster dose should be given at least every 3 years. Even when more than a 3-year interval has elapsed since the prior immunization, a single booster injection is sufficient.

The following alternate routes and dosages of booster immunization can be expected to produce comparable antibody responses. Generally less reaction follows vaccination by the intradermal route, except when acetone-killed and dried vaccine is used. (The latter vaccine should not be given intradermally.)

**Adults and children 10 years and older:** 0.5 ml subcutaneously or 0.1 ml intradermally.

**Children 6 months to 10 years:** 0.25 ml subcutaneously or 0.1 ml intradermally.

## PRECAUTIONS AND CONTRAINDICATIONS

Typhoid vaccination often results in 1-2 days of discomfort at the site of injection. The local reaction may be accompanied by fever, malaise, and headache.

\*Since febrile reactions to typhoid vaccine are common in children, an antipyretic may be indicated.

*Typhoid Vaccine — Continued*

## SELECTED BIBLIOGRAPHY

- Ashcroft MT, Singh B, Nicholson CC, et al: A seven-year field trial of two typhoid vaccines in Guyana. *Lancet* 2:1056-1059, 1967
- Cvjetanovic B, Uemura K: The present status of field and laboratory studies of typhoid and paratyphoid vaccine: With special reference to studies sponsored by the World Health Organization. *Bull WHO* 32:29-36, 1965
- Hejfec LB, Levina LA, Kuz'minova ML, et al: Controlled field trials of paratyphoid B vaccine and evaluation of the effectiveness of a single administration of typhoid vaccine. *Bull WHO* 38:907-915, 1968
- Hornick RB, Woodward TE, McCrumb FR, et al: Typhoid fever vaccine—yes or no? *Med Clin North Am* 51:617-623, 1967
- Hornick RB, Greisman SE, Woodward TE, et al: Typhoid fever: Pathogenesis and immunologic control. *N Engl J Med* 283:686-691, 739-746, 1970
- Mallory A, Belden EA, Brachman PS: The current status of typhoid fever in the United States and a description of an outbreak. *J Infect Dis* 119:673-676, 1969
- Polish Typhoid Committee: Controlled field trials and laboratory studies on the effectiveness of typhoid vaccines in Poland, 1961-64: Final report. *Bull WHO* 34:211-222, 1966
- Schroeder S: The interpretation of serologic tests for typhoid fever. *JAMA* 206:839-840, 1968
- Typhoid vaccines. *Lancet* 2:1075-1076, 1967
- Yugoslav Typhoid Commission: A controlled field trial of the effectiveness of acetone-dried and inactivated and heat-phenol-inactivated typhoid vaccines in Yugoslavia: Report. *Bull WHO* 30:623-630, 1964
- Published in *MMWR* 15:247, 1966; revised 18(43 Suppl):26, 1969; revised 21(25 Suppl):38-39, 1972

Readers will note that, beginning this issue, the *MMWR* has increased to 12 pages that are reduced in size to 6-1/8 inches by 8-1/2 inches. This redesign was necessary because of new U.S. Postal Service regulations that substantially increase mail rates for publications over a certain size.

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